substantial: it is estimated that in 2012, 1.2 million HIV-related deaths occurred. These deaths are chiefly related to tuberculosis (TB) and opportunistic infections, particularly cryptococcal meningitis. Post-mortem data from Africa demonstrates that 30-50% of HIV-related deaths have active TB disease, and in many cases the TB was undiagnosed ante-mortem. Under-diagnosis and late diagnosis of TB in HIV is a major driver of mortality and related to non-specific clinical presentations, poor sensitivity of available diagnostics, frequent extra-pulmonary involvement and rapidity of clinic deterioration in patients with severe immunodeficiency.

In hospitalised patients diagnosed with TB case fatality rates are particularly high (11-50%), despite TB treatment, ART and cotrimoxazole prophylaxis and reasons for this need to be further examined to improve acute management strategies and outcomes. The contribution of bacterial infections to HIV-TB deaths needs to be more accurately defined. Mortality rates in patients started on ART in Africa are higher than in industrialised countries even after adjusting for CD4 count. Studies of routine screening, regardless of symptoms, amongst patients commencing ART in Africa have demonstrated high prevalence of active TB (up to 25%) and cryptococcal antigenaemia (up to 20% in those with CD4 < 100) suggesting such routine screening should be considered where resources permit and may impact mortality. However, outcomes data on the impact of such screening programmes is limited. Health system and patient factors contribute to ongoing mortality: many patients are only diagnosed with HIV when immunosuppression is advanced, in a subset of patients adherence on ART is poor resulting in virological failure and default from the ART programme is associated with substantial morbidity. The net result is that there remains a significant population of HIV-infected people with low CD4 counts amongst whom mortality remains high.

http://dx.doi.org/10.1016/j.ijid.2014.03.431

Type: Invited Presentation

Final Abstract Number: 02.004
Session: Spotlight on Africa
Date: Thursday, April 3, 2014
Time: 10:15-12:15
Room: Auditorium 2

Building laboratory capacity in Africa

T. Peter
The Clinton Health Access Initiative, New York, USA

Investment in healthcare in Africa has increased significantly over the past decade driven by efforts to combat HIV, TB, malaria as well as in response to Africa's development trends and new health priorities. Unfortunately, medical laboratories in Africa are unfortunately under-developed and suffer from both systemic and infrastructure capacity weaknesses. They cannot meet the testing demands of rapidly growing health delivery services on the continent.

The African Society for Laboratory Medicine, a pan-African professional body endorsed by the Africa Union, is focused on improving healthcare by improving laboratory services. In 2012, ASLM convened its inaugural conference themed "Accurate diagnostics is the Cornerstone of Quality Healthcare". At this meeting, six African Ministers of Health signed a Call to Action for Laboratory Strengthening in Africa. This statement recognized that laboratory tests are pivotal in disease diagnosis, patient management, surveillance, outbreak investigation, and research and highlighted the integral link between expanded access to high quality, reliable laboratory services and improved health outcomes.

Recognizing the 2008 WHO Resolution AFR/RC58/R2 for strengthening public health laboratories in the African region, ASLM is advancing the Call to Action by working collaboratively with governments, regional and international organizations, and the private sector towards the following goals by 2020 – (i) strengthening the laboratory workforce through training and retention initiatives; (ii) accrediting laboratories to improve testing quality and reliability; (iii) developing strong, harmonized regulatory systems for diagnostic products to improve patient safety and; (iv) building a network of public health reference laboratories to improve early disease detection and south-south collaboration.

http://dx.doi.org/10.1016/j.ijid.2014.03.432

Type: Sponsored Symposium

Final Abstract Number: 03.001
Session: Implementing Antimicrobial Stewardship in an Era of Multidrug Resistance
Date: Thursday, April 3, 2014
Time: 10:15-12:15
Room: Room 1.40

Antibiotic use and the trends of gram-negative resistance around the world

A. Brink
Milpark Hospital, Johannesburg, South Africa

Bacterial resistance in clinically important pathogens has reached alarming rates and exerts a significant impact on clinical outcomes. This phenomenon is longer confined to the hospital setting alone and will continue to worsen if not addressed, due to the fact that no antimicrobial options for severe Gram-negative bacterial infections (GNB) are on the immediate horizon. The specific multidrug (MDR), extensive drug (XDR) and pan-drug resistant (PDR) bacteria that necessitate, antimicrobial stewardship (AMS) or antibiotic conservation as a matter of urgency, are the extended-spectrum β-lactamase (ESBL) producing and/or carbapenemase-producing Enterobacteriaceae (CPE) (e.g. Escherichia coli and Klebsiella pneumonia). Indeed, colistin resistance amongst the latter pathogens have now emerged amongst the major carbapenemase genotypes (e.g NDM, KPC and OXA-48-like) and have been described from several continents. Regarding carbapenemases, several studies have shown that prior carbapenem therapy is not a prerequisite for acquisition of CPE. The genes conferring such resistance usually reside on large plasmids, which frequently carry additional resistance determinants that confer cross-resistance to several if not all antibiotic classes. As a consequence, prior use of any antibiotic may select for carbapenemase-producing GNB. Besides the XDR nature of the CPE genes, the role of formulary interventions in controlling CPE is not well studied. Therefore, rather than targeting a specific class or limiting specific agents, an overall reduction in antibiotic use is recommended as a focus for ASPs. A patient's cumulative antibiotic exposure history is likely to be more important than any one specific exposure when determining the likelihood of developing a CPE infection. It also appears that not only is prior cumulative exposure a risk factor, but that the risk increases with increasing duration of prior treatment. Hence, the development of resistance is a complex consequence of inappropriate prior antibiotic use which include homogenous and repetitive use (always the same agent), excessive use (e.g. routine combination therapy), prescribed
Role of antimicrobial stewardship (AMS) & strategies for appropriate antimicrobial therapy

E.J. Goldstein
RM Alden Research Laboratory, Santa Monica, CA, USA

Antimicrobial Stewardship (AMS) is a new “buzz word” that has resonated across the world because of the pandemic of antimicrobial resistance but is in essence a rehashing of the classical teachings that have always been part of every ID fellowship and medical residency. Its mantra is selecting the most efficacious, narrowest spectrum and cost effective therapy to treat the most likely pathogens at the site of infection. It is essentially a TEAM effort utilizing multiple elements including formulary restriction, preauthorization and concurrent or post-therapy review and feedback. Supplemental strategies include education, de-escalation, streamlining, dose optimization, iv to po conversion and automatic stop dates. Successful programs also need microbiology and culture stewardship, environmental services and infection prevention elements. Despite these efforts the C-Suite must often be educated and convinced that AMS is a Quality measure related to patient outcomes and not just a budgetary line. Targeting abused and unnecessary antibiotics and overly broad or ineffective therapies coupled with attention to emergence of bacterial resistance are key elements of AMS. Problem organisms include resistant P. aeruginosa, ESBL E. coli, Carbapenemase-resistant Enterobacteriaceae and Acinetobacter spp. With the emergence of ESBL E. coli ST 131 H30Rxx whose global clonal expansion and its disproportionate association with sepsis has engendered the use of carbapenems as the treatment of choice in geographic areas of high prevalence and specific diseases as pyelonephritis and bacteremia. The emergence of multi-resistant P. aeruginosa has been related to the selective pressures of overuse of expanded cephalosporins, piperacillin-tazobactam, fluoroquinolones and class II carbapenems. CREs, which are often clonal, have emerged with the majority of reported cases selected by non-carbapenem antibiotics and require intense augmented Infection Control preventions to stop spread. Appropriate AMS therapy is a quality measure to improve morbidity and mortality that also can reduce length of stay with collateral financial benefit as well as improving the resistance rates.

http://dx.doi.org/10.1016/j.ijid.2014.03.434

Type: Sponsored Symposium

Final Abstract Number: 03.002
Session: Implementing Antimicrobial Stewardship in an Era of Multidrug Resistance
Date: Thursday, April 3, 2014
Time: 10:15-12:15
Room: Room 1.40

Pseudomonas resistance in hospital setting: why pseudomonas sparing is an important AMS strategy

Y. Carmeli
Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

Pseudomonas aeruginosa is an opportunistic pathogen affecting patients with reduced immunity either due to treatment or disease. It is associated primarily with device related infections such as ventilator associated pneumonia and catheter related blood stream infections. Indeed, P. aeruginosa is an important nosocomial pathogen and among the leading causes of ventilator associated pneumonia, bacteremia, and surgical site infections. P. aeruginosa is hard to treat. It is intrinsically resistant to most antibiotic agents, and to the handful anti-pseudomonas agents it is acquiring resistance rapidly under antibiotic pressure. Therefore, to preserve treatment options against P. aeruginosa, it is important to reduce anti-pseudomonal antibiotic pressure. Antibiotic stewardship programs aim is to improve the adequacy of antibiotic pressure and to balance between the need for early effective therapy to treat an infection with the need to reduce antibiotic pressure in order to reduce side effects, toxicity and adverse outcomes in the individual patient as well as to preserve antibiotic for future use. Selection of antibiotics should be targeted to the pathogens that likely affect the specific patient. This decision is complex; it requires understanding the patient background and condition, the severity of diseases, and the local microbiology and epidemiology. Nevertheless this is the most important decision in antibiotic prescribing, and has particular importance when considering anti-pseudomonal treatment. Antibiotic stewardship programs should provide advice and tools that will facilitate stratification of patients into risks categories of infection with P. aeruginosa, with other resistant gram-negative bacteria, and the risk in delay of appropriate therapy. This risk stratification should be based on various exposures including to the healthcare setting and to antibiotics, the patient medical history and the local epidemiology. Successful antibiotic stewardship will improve patient outcomes and will reduce antibiotic pressure.

http://dx.doi.org/10.1016/j.ijid.2014.03.435